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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,828	01/18/2002	Naoya Kamimura	111724	6924

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EXAMINER

BEATTY, ROBERT B

ART UNIT	PAPER NUMBER
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2852

DATE MAILED: 07/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/050,828

Applicant(s)

KAMIMURA, NAOYA

Examiner

Robert Beatty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-24 is/are rejected.
- 7) ☒ Claim(s) 21, 25 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

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1. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 12, and claim 17, line 3, the phrase "to one of" is confusing since there are not two alternatives described after this phrase.

In claim 10, line 7, the use of "or" as alternative language is considered indefintite since it links two items that are not considered functionally equivalent.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,8-9,11,17-20,23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura (JP# 05-100559).

Nakamura teach an image forming apparatus comprising a photosensitive drum 1, a charging device 2, an electrostatic latent image forming means 3, a developing device 4, a transfer means 5 for transferring a developed toner image to a paper sheet, and a cleaning system 6 for cleaning residual toner off the photosensitive drum after a transfer operation. The developing device comprises a developing roller 42 which is pressed into contact with the photosensitive drum. The photosensitive drum has a driving system 7 for independently rotating the

photosensitive drum and the developing roller has a drive system 8 for independently rotating the developing roller. As seen in Fig. 2, the drive system of the photosensitive drum starts to rotate the drum at a timing T1 and halts the rotation at a time T10. Additionally, the developing roller drive system starts to rotate the developing roller at a time T2 and halts the rotation at a time T7. See paragraphs 17 – 24. The driving of the developing roller and photosensitive drum are controlled by controller 9 which has a drive halting control section 9a. Therefore, the developing roller starts to rotate after the drum rotates and stops rotating before the drum stops rotation but after the transfer device starts to transfer the toner image to the paper sheet. In this way, the developing roller can be held in a non-rotation state while the drum is rotating and therefore adhesion of toner to the photosensitive drum can be prevented via frictional force (scraping the surface of the drum). It is noted that the time between the start of the photosensitive drum T1 and the time of the start of the developing roller T2 is considered “substantially” simultaneously in that this time is very small.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (JP# 05-100559) in view of Shimokawa (JP# 04-43378).

Nakamura taught supra discloses most of what is claimed except the developing roller being separated from the photosensitive drum. Shimokawa teach an image forming apparatus comprising a photosensitive drum 1 and a developing roller 4 in contact with the drum. After an image forming operation is finished a contact/separating means 15-17 will separate the developing roller from contact with the photosensitive drum. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura with a contact/separating means so that the developing roller can be biased out of contact with the photosensitive drum because the developing roller can be prevented from being deformed as taught in Shimokawa.

4. Claims 2-3,4-6,15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hazama et al. in view of Nakamura (JP# 05-100559).

Hazama et al. teach an image forming apparatus comprising a photosensitive drum 42, a charging device 43, an electrostatic latent image forming means 24, a developing device 50, a transfer means 31 for transferring a developed toner image to a paper sheet, and a cleaning system 44 for cleaning residual toner off the photosensitive drum after a transfer operation. The developing device comprises a developing roller 53 which is pressed into contact with the

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photosensitive drum. The photosensitive drum has a single layer OPC surface. An electrostatic image formed on the drum is developed by a one-component developer. Specifically, Hazama et al. teach everything claimed except the developing roller stopping rotation while the photosensitive drum is rotated. In addition, the toner being a polymer toner and having a Q/M ratio of 10 microcoulombs or greater, the developing roller having a hard exterior surface layer, and the image forming system comprising a plurality of photosensitive drum is not taught.

Nakamura teach an image forming apparatus comprising a photosensitive drum 1, a charging device 2, an electrostatic latent image forming means 3, a developing device 4, a transfer means 5 for transferring a developed toner image to a paper sheet, and a cleaning system 6 for cleaning residual toner off the photosensitive drum after a transfer operation. The developing device comprises a developing roller 42 which is pressed into contact with the photosensitive drum. The photosensitive drum has a driving system 7 for independently rotating the photosensitive drum and the developing roller has a drive system 8 for independently rotating the developing roller. As seen in Fig. 2, the drive system of the photosensitive drum starts to rotate the drum at a timing T1 and halts the rotation at a time T10. Additionally, the developing roller drive system starts to rotate the developing roller at a time T2 and halts the rotation at a time T7. See paragraphs 17 – 24. The driving of the developing roller and photosensitive drum are controlled by controller 9 which has a drive halting control section 9a.

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Therefore, the developing roller starts to rotate after the drum rotates and stops rotating before the drum stops rotation but after the transfer device starts to transfer the toner image to the paper sheet. In this way, the developing roller can be held in a non-rotation state while the drum is rotating and therefore adhesion of toner to the photosensitive drum can be prevented via frictional force (scraping the surface of the drum).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hazama et al. with the photosensitive drum / developing roller drive control scheme taught in Nakamura because sticking and solidified toner on the photosensitive drum can be avoided as taught in Nakamura. Further, the examiner takes Official Notice that it is typical that a one-component toner is made from a polymer material and has a Q/M ratio greater than 10 microcoulombs because the latent image can have a complete development with less wasted toner. Finally, the examiner also takes Official Notice that the use of a plurality of photosensitive drums is very well known for the purpose of producing a color image.

5. Claims 7,10,13-14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

6. Claim 21,25,26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Maruyama et al., Asami (JP), Watanabe (JP), JP# 2000-162937, Mukoudaka (JP), Nimata (JP), and Sakamoto (JP) all teach various film scraping of photosensitive drum or of timing arrangements between the start and stopping of photosensitive drums and developing rollers.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Beatty whose telephone number is 703-308-1372. The examiner can normally be reached on M-F from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley, can be reached on (703) 308-1373. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318 (before final) and 703-872-9319 (after final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

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A handwritten signature in black ink, appearing to read "Robert Beatty". The signature is fluid and cursive, with the first name "Robert" and last name "Beatty" clearly distinguishable.

Robert Beatty
Primary Examiner
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June 30, 2003